

Work Order ID 56071

February 9, 2010 1:33:51 PM

Page 1

Item ID: D3624-2

Accept

Revision ID:

Item Name: Bubble Window

Start Date: 2/09/10 Start Qty: 2.00

Required Date: 2/12/10 Req'd Qty: 2.00

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr

Revision Nbr

D3624

Rev D

100



Thermoform

Thermoforming Machine

HAND FINISHING THERMOFORMING

Memo

Cut Blanks to 30" by 48"

0.00

0.00

BB  
10/02/10

110



Thermoform

Thermoforming Machine

THERMOFORMING MACHINE

Memo

Thermoform as per Dwg. D3624 and Folio FTA 004 Dwg. Rev.

Folio Rev. D

0.00

0.00

BB  
10/02/10  
X2

120



QC

Quality Control

QC2- Inspect parts off machine FAI/FAIB

Memo

Check Surface finish for undesired marks, voids, dimples etc. Check depth of bubble to ensure conformity to drawing tolerances.

0.00

0.00

BB  
10/02/11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 56071

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Page 2

Item ID: D3624-2

Accept



Setup Start



Revision ID:

Stop



Item Name: Bubble Window

Start Date: 2/09/10 Start Qty: 2.00



Cust Item ID:

Required Date: 2/12/10 Req'd Qty: 2.00



Customer:

Reference:

Run Start



Approvals: Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

130



Thermoform

Thermoforming Machine

HAND FINISHING THERMOFORMING

Memo

0.00

0.00

1) Trim to Finished Dimensions (2) Buff out any light scratches or blemishes (3) Etch in part number and batch number

JB  
10/02/11  
X2

140



QC

Quality Control

QC2- Inspect parts off machine FAI/FAIB

Memo

0.00

0.00

JB  
10/02/11  
X2

150



QC

Quality Control

QC5- Inspect part completeness to step on W/O

Memo

0.00

0.00

Sidley

X2

Talked with Mike P. and told me  
next impact change was the Plunger  
Sidley

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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**NOTE:** Date & initial all entries

# Work Order ID 56071

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Page 3

Item ID: D3624-2

Accept



Setup Start



Revision ID:

Stop



Item Name: Bubble Window

Start Date: 2/09/10 Start Qty: 2.00



Cust Item ID:

Required Date: 2/12/10 Req'd Qty: 2.00



Customer:

Reference:

Run Start



Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

160

Identify as per dwg & Stock Location: \_\_\_\_\_

0.00



Packaging

Memo

0.00

Packaging

10-2-11 (2x)

170

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

10/02/11

MF  
10-2-11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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**NOTE:** Date & initial all entries

# Picklist Print

February 9, 2010 1:33:50 PM

Page 1

Work Order ID: 56071



Parent Item: D3624-2



Parent Item Name: Bubble Window

Start Date: 2/09/10

Required Date: 2/12/10

Comments: IPP A Thermoform in house 6/27/2007 DL  
IPP B. Revised due to corrupt operating Program. 7/23/2007 DL  
IPP C. Dwg. Rev. change 7/30/2007  
IPP D. Dwg. Rev. Updated 4/25/2008 verified by:DD

Start Qty: 2.00

Required Qty: 2.00

MACRYLICS.177

Purchased

No

sf

242.1200 20.0100



0.177" PLEXIGLAS G CLEAR CAST ACRYLIC SHEET

## Warehouse

## Loc Qty

## Loc Code

### Location

Main Warehouse

MAT

242.12

105075

67

107291

72

111315

103.12

108784

X 2 BB  
10/02/10

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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NOTE: Date & initial all entries



<b>DART AEROSPACE LTD</b>		<b>Work Order:</b>	5071
<b>Description:</b> Bubble Window (A119)		<b>Part Number:</b>	D3624-2 A
<b>Inspection Dwg:</b> D3624	<b>Rev:</b> D	<b>Page 1 of 1</b>	

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

### THERMOFORMING SECTION

Description	Accept	Reject	Method of Inspection	Comments
Bubble Depth within tolerance	✓			
Shape Definition	✓			
Material imperfections such as bumps, cracks, voids, scratching	✓			

<b>Measured by:</b> BB	<b>Date:</b> 10/02/10
------------------------	-----------------------

### TRIMMING SECTION

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
11.0	+/-0.25	11.8177	✓			
3.0	0.095 Min	.099	✓			PTO
8.5 S.S	0.058 Min	.069	✓			PTO
3.0	0.060 Min	.103	✓			PTO
8.5 S.S	0.042 Min	.080	✓			PTO
2.5	0.030 Min	.032	✓			
92°	+/-0.2° Min	.92°	✓			
90°	+/-0.2° Min	.90°	✓			
0.85	Min	.875	✓			
0.70	Min	.75	✓			

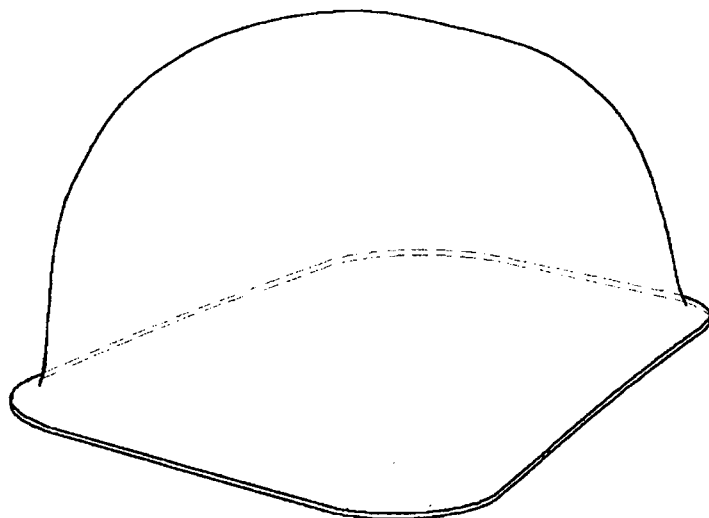
<b>Measured by:</b> BB	<b>Date:</b> 10/02/10
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<b>Audited by:</b> BB C	<b>Date:</b> 10/02/10
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<b>Prototype Approval:</b> nln	<b>Date:</b>
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Rev	Date	Change	Revised by	Approved
A	08.11.28	New Issue	KJ/DL	





**D3624-2 BUBBLE WINDOW**

**NOTES:**

- 1) MATERIAL: PLEXIGLAS G CLEAR CAST ACRYLIC SHEET PER LP-391 TYPE 1 GRADE C  
OR POLYCAST II CLEAR ACRYLIC SHEET PER MIL-P-5425  
0.177 TO 0.188 THICK (STOCK, REF DART SPEC M-ACRYLIC-S)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.010 TO 0.020 MAX
- 6) IDENTIFICATION: ENGRAVE P/N & B/N ON FLANGE WITHIN 0.25" OF BUBBLE. USE 0.125" LETTERS TO MAX DEPTH OF 0.005".
- 7) WEIGHT: 2.95 lbs
- 8) FORM PER DT8953 AND QSI 022  
FORMING PROCESS: (a) DRAPE OVER DT8953 MOLD  
(b) HEAT TO 290°F  
(c) VACUUM FORM TO SPECIFIED HEIGHT  
(d) LET COOL TO AT LEAST 100°F BEFORE HANDLING  
(e) TRIM FLANGE USING DT8954

*W/36071*

*REL 08-23-25 MB*

D	REDRAW, REFORMAT, RMV SHAPE TOOL, ADD SEC B-B (2C8) & C-C (2C3), ADD FLANGE & WALL & WALL ANGLE DIMS, UPDATE MAT'L SPEC (1B8)	CP	08.03.12
C	ADD TOOL TO CONTROL BUBBLE SHAPE	CP	07.06.27
B	11.0" DEPTH WAS 12.0"	CP	07.05.24
A	NEW ISSUE	CP	07.06.27
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.03.12		

<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA			
DRAWING NO.	D3624	REV. D	
TITLE	BUBBLE WINDOW (A119)	SCALE	NTS
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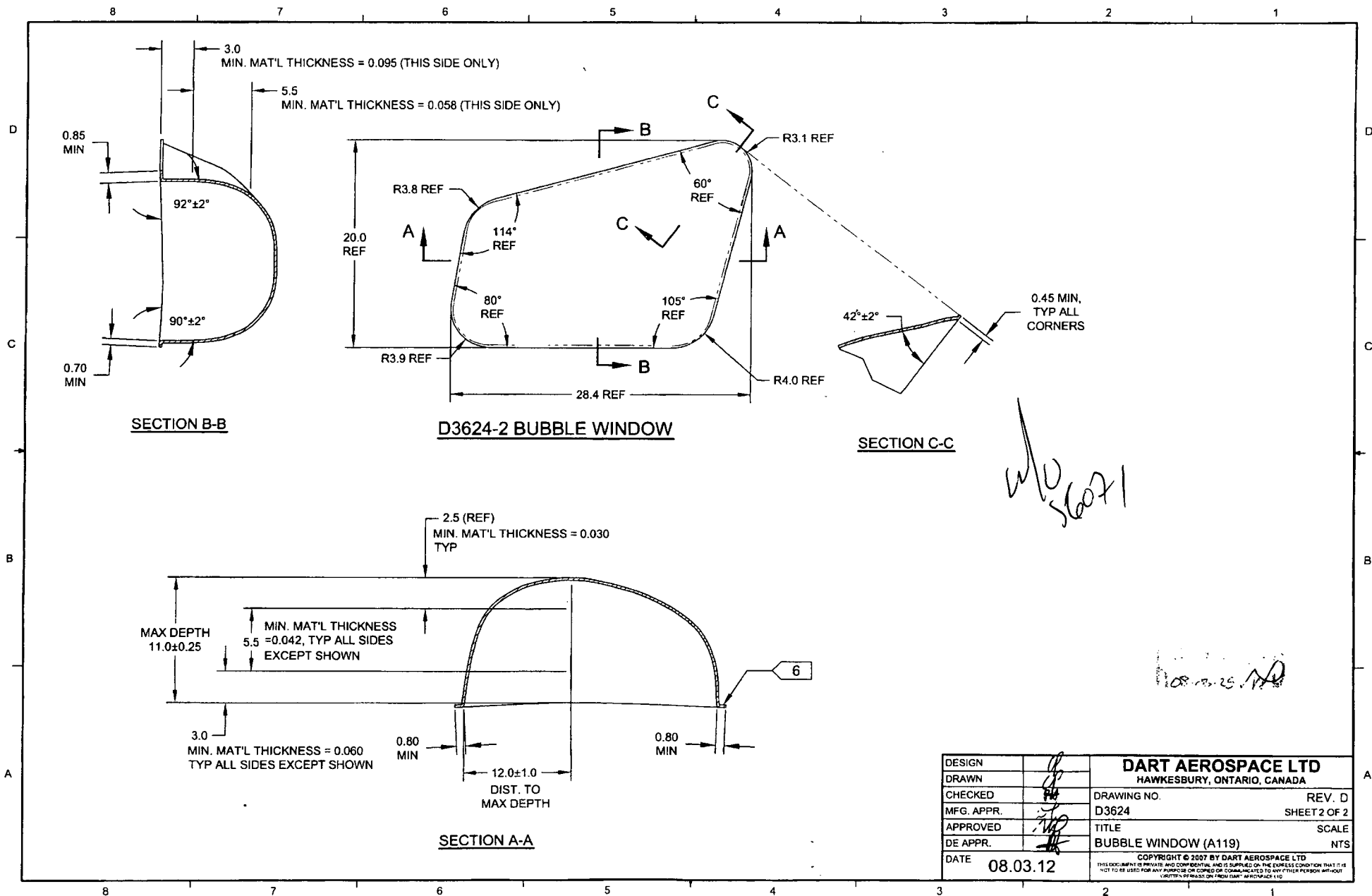
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DESIGN		<b>DART AEROSPACE LTD</b>	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. D
MFG. APPR.		D3624	SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.		BUBBLE WINDOW (A119)	NTS
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